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david edgerton **view from the top**

Devil's advocates

The post of government chief scientific adviser—which turns 50 this month—was created as much to criticise policy as to facilitate it, says **David Edgerton**.

In October 1964, Harold Wilson, the recently elected Labour prime minister, appointed Solly Zuckerman as chief scientific adviser to the British government. There has been CSA ever since, but the role has changed drastically as the nature of the British state's scientific and technological capacity and its position in the world has been transformed.

In 1964, British national R&D expenditure was nearly 3 per cent of GDP—much higher than it is today. Scientific advisers, in part, gave independent, external advice on this, especially the state-supported R&D in which government research scientists and engineers often had key executive roles. That advice was often critical. The second role for scientific advisers in government was to give advice on matters not directly concerned with research as such, nor indeed solely on the basis of the results of research.

Both these modes of advice predate the position of CSA by decades. For example, the Advisory Committee on Aeronautics and its successors began giving advice on particular research programmes in the crucial field of aeronautics before the first world war. The history of more general advice by scientists is also a very long one, but the second world war was an important turning point. The key idea (which will be told in full for the first time in William Thomas's book *Rational Action*, to be published next year) was that scientists doing 'operational research' could usefully advise military officers on military operations and improving the effectiveness of weapons.

This was the sense in which Henry Tizard was scientific adviser to the chief of the air staff, and this was the role of the wartime scientific advisers to each of the service ministries that ran the army, navy and air force. Zuckerman was a junior scientific adviser, first to Combined Operations, then to part of the allied air forces. These advisers were not in charge of R&D policy or laboratories—other scientists and engineers did that—or anything other than a very small staff.

During the war, many of the key scientific advisers were deeply hostile to some research programmes. Many felt that a British atomic bomb was not a good idea—the war would be over too soon. Large rocket development was a particular bugbear for some.

In fact, many advisers were deeply hostile to the

greatest of their kind—Frederick Lindemann, professor of physics at Oxford. Lindemann was a personal assistant to prime minister Winston Churchill and a close adviser on all sorts of matters apart from strategy. He was elevated to the Cabinet in 1941. No other scientific adviser has matched him in power, influence or breadth of advice.

After the war, the distinction between advisers and executive scientists remained (though it has escaped most students of science policy). In many cases, both types of job were occupied by scientific civil servants, as the government research corps was then styled.

The internally recruited scientific advisers, though their names are practically unknown to students of science policy, were, on balance, much more influential than the outsiders. The key positions were in the Ministry of Defence, which oversaw both the service ministries and the Ministry of Supply. At the MoD in the 1950s, Frederick Brundrett, a former naval scientist, played a crucial role in obtaining hydrogen bombs for Britain.

In 1960, Solly Zuckerman was appointed chief scientific adviser to the Ministry of Defence. Not since Henry Tizard in the 1940s had the post been held by an external figure. Zuckerman was not a nuclear scientist, nor an aeronautical engineer—indeed he was a formidable critic of elements of the key policies of the scientific weaponeers. But he lost most of his battles to scientists far less well known than him. In 1964, he became CSA to the government and soon relinquished the defence role.

As government CSA he was also a critic, for example, of the idea that Britain spent too little on research and development. He is a key example of the CSA not as propagandist for more research but as a reflective critic of the claims of parts of the research community.

Since then, the role has become a much smaller one on the world stage and one more concerned with issues in public health, the administration of scientific advice, and advocacy for the scientific worldview within government.

Whether the status of the CSA has risen or fallen since 1964 is a matter of debate, but it is a serious mistake to equate the extent of state support for research with the status and power of advisers, including the CSA.

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'Zuckerman is an example of the CSA not as propagandist for more research but as a reflective critic of the claims of parts of the research community'

David Edgerton's latest book is England and the Aeroplane: Militarism, Modernity and Machines (Penguin).